

COMPUTER NETWORKING SYSTEMS (CNTS), AAS

At Dunwoody College of Technology, the Computer Networking Systems program prepares graduates for careers in the rapidly growing and changing fields of enterprise computer systems and networking administration.

Students are taught current technologies and skills to architect, support, build, and maintain enterprise networks and systems. Those technologies include cloud services, virtualization, IT security, directory services, network and systems automation, enterprise applications, and routing and switching.

Coursework includes Amazon and Microsoft cloud services featuring Amazon Academy curriculum, Microsoft and Linux operating systems, related network support services featuring Cisco® Academy curriculum, and desktop and server hardware. Students also develop skills in coding, computer logic, and data communications. Interpersonal soft-skills are emphasized in all courses.

Arts & Sciences courses enhance and support the technical coursework.

Credential Earned: AAS

Length of Program: 2 years (4 semesters)

Classes Offered: Day and Distance Learning

Available Starts: Fall Semester; Spring Semester

Bachelor's Completion Option(s): Computer Science (CSCI), Bachelor of Science (<https://catalog.dunwoody.edu/catalog-student-handbook/academic-programs/computer-technology/computer-science-csci-bachelor-science/>) | Cybersecurity (CYBR), Bachelor of Science (<https://catalog.dunwoody.edu/catalog-student-handbook/academic-programs/computer-technology/computer-science-csci-bachelor-science/>)

Program Outcomes

- Create an enterprise network system.
- Configure enterprise hardware.
- Build a virtualized enterprise environment.
- Use programming fundamentals for automating networks and services.
- Deploy relevant industry applications in an enterprise environment.
- Apply troubleshooting techniques to discover and resolve problems.

Degree Requirements

Code	Title	Credits
General Requirements		
COMM1150	Interpersonal Communication	3
MATH1000	Algebra & Trigonometry	3
MATH1300	Boolean Algebra & Number Systems	2
PHIL2450	Social Ethics	3
PSYC1000	Psychology	3
WRIT2010	Technical Writing	3
Social Sciences 3		
Technical Requirements		
CNTS1101	Introduction to Operating Systems	4
CNTS1122	Introduction to Networking	3
CWEB1003	Programming Fundamentals I	3

CWEB1010	Introduction to Web Development	3
CNTS1201	Scripting	4
CNTS1211	Server Systems	5
CNTS1231	Network Systems	4
CNTS2101	Routing & Switching	5
CNTS2112	Advanced Server Systems	5
CNTS2131	Virtualization	3
CNTS2202	Advanced Routing & Switching	4
CNTS2213	Enterprise Systems	4
CNTS2224	Enterprise Linux Administration	3
CNTS2231	Introduction to Cybersecurity	2
Total Credits		72

Courses

Descriptions

CNTS1101 | Introduction to Operating Systems | Lec/Lab (4 Credits)

Examine maintenance and repair concepts of computer operating systems, hardware, peripherals, and component selection/installation for machines commonly found in a business. Practice using the file systems and command line interfaces of Linux and Windows operating systems to gain a basic understanding of how they work and their similarities and differences.

Corequisite(s): CNTS1122

CNTS1122 | Introduction to Networking | Lec/Lab (3 Credits)

Introduction to the concepts and terminology of data communications in a business environment. Examine client-server networking, communication hardware, software, and basic security. Analyze services and models supporting data communications interoperability. Configure and troubleshoot basic network connections and the associated hardware/software.

Corequisite(s): CNTS1101

CWEB1003 | Programming Fundamentals I | Lec/Studio (3 Credits)

Examine basic programming principles like data types, variables, expressions, operators, Boolean logic, algorithm creation, flowcharts. Topics include: structured programming and programming logic constructs (sequence, selection, and loops); abstraction, modularization, dynamic and static data-structures, object-oriented and event driven programming.

Corequisite(s): CWEB1010

CWEB1010 | Introduction to Web Development | Lec/Studio (3 Credits)

Hypertext Markup Language (HTML). Basic page structure, tags, link, text formatting, forms, tables, and debugging with trouble-shooting skills. Cascading Style Sheets (CSS), advanced formatting, and layout. Integration of web scripting languages (like Javascript) into existing web pages to increase user-friendliness and functionality. Creation of scripts for new pages.

Corequisite(s): CWEB1003

CNTS1201 | Scripting | Lec/Lab (4 Credits)

Apply programming techniques to managing computer systems and networks. Topics include: programming and its best practices, methods of code writing, and development of real world scripts used to manage enterprise networks.

Prerequisite(s): CWEB1003

Corequisite(s): CNTS1211

CNTS1211 | Server Systems | Lec/Lab (5 Credits)

Install, configure, maintain, and manage the primary services in the Server operating system. Introduction to the sharing of system resources, remote administration techniques to facilitate efficient and effective management of business computer systems.

Prerequisite(s): CNTS1101 And CNTS1122

Corequisite(s): CNTS1201

CNTS1231 | Network Systems | Lec/Lab (4 Credits)

Expansion of concepts and terminology of business data communications and how they apply to the business environment. Intermediate to advanced client-server networking concepts, including its associated networking hardware, addressing and services; logical addressing, IP routing, and network protocols. Install and configure client-server networking systems.

Prerequisite(s): CNTS1122

CNTS2101 | Routing & Switching | Lec/Lab (5 Credits)

Examine concepts and application of bridging, switching, and routing in an industry-standard networking environment. Install, configure, and manage networks, routers, and switches to facilitate basic network communication architectures. Portions of this course help to prepare for the Cisco Certified Networking Associate (CCNA) exam.

Prerequisite(s): CNTS1231 Or CNTS1230

CNTS2112 | Advanced Server Systems | Lec/Lab (5 Credits)

Install, configure, maintain, and manage enterprise servers and services. Configure and deploy cloud-based servers and services. Configure and deploy virtual server environments. Configure and deploy highly available server and service solutions. Utilize automation in the management of Directory services.

Prerequisite(s): CNTS1211 Or CNTS1210

CNTS2131 | Virtualization | Lec/Lab (3 Credits)

Install, configure, maintain, and manage a variety of virtualization software; examine the underlying principles of virtualization; create a virtual IT infrastructure; advantages and disadvantages of moving to a virtualized environment; comparison of major virtualization software systems.

Prerequisite(s): CNTS1211

CNTS2202 | Advanced Routing & Switching | Lec/Lab (4 Credits)

Examine advanced concepts and application of bridging, switching, and routing in an industry-standard networking environment. Practice advanced business network communication architectures. Assists in preparation for the Cisco Certified Networking Associate (CCNA) exam.

Prerequisite(s): CNTS2101

CNTS2213 | Enterprise Systems | Lec/Lab (4 Credits)

Install, configure, and manage Enterprise databases. Develop and deploy Enterprise IT management services including, site security, database connectivity, site administration, and monitoring. Develop advanced skills in AWS Cloud Architecture and Microsoft Azure.

Prerequisite(s): CNTS2112

CNTS2224 | Enterprise Linux Administration | Lec/Lab (3 Credits)

Install, configure, maintain, and manage a wide variety of Open Source Software (OSS) with an emphasis on common web, file and database servers found in industry; the history of the open source movement. Configure OSS operating systems to support common client-servers, Web hosting, and other services commonly found at the enterprise and ISP levels of industry. In-depth coverage of technologies related to hosting websites including programming language support, database support/connectivity, and remote access.

Prerequisite(s): CNTS2130

CNTS2231 | Introduction to Cybersecurity | Lec/Lab (2 Credits)

Explore the field of cybersecurity through such topics as computer system architectures, critical infrastructures, cyber threats and vulnerabilities, cryptography, information assurance, network security, and risk assessment and management. Identify fundamental security concepts, technologies, and practices; develop a foundation for further study in cybersecurity.

Prerequisite(s): CNTS2101 And CNTS2112

COMM1150 | Interpersonal Communication | Lecture (3 Credits)

Analyze the process of interpersonal communication as a dynamic and complex system of interactions. Integrate interpersonal communication theory into work, family and social relationships. Apply fundamental tools needed to provide quality customer service. Decision making, problem solving, and managing customer service processes are emphasized.

General Education: Communications

MATH1000 | Algebra & Trigonometry | Lecture (3 Credits)

Real numbers and polynomials, exponents and radicals, fractional equations; proportions and linear equations; trigonometric functions, solutions of triangles, radians, trig functions graphs, vectors, and basic identities.

General Education: Mathematics

MATH1300 | Boolean Algebra & Number Systems | Lecture (2 Credits)

Binary, octal and hexadecimal number systems. Boolean algebra and mapping.

General Education: Mathematics

PHIL2450 | Social Ethics | Lecture (3 Credits)

Introduction to the practice of philosophy via the exploration of moral philosophy. Develop the ability to recognize, analyze, and discuss the moral problems which arise in life through the critical examination of ethical theories and their application to the issues of contemporary society. Topics to be considered will vary based on current events and student interest.

General Education: Humanities

PSYC1000 | Psychology | Lecture (3 Credits)

The science of human behavior; the history of the discipline, biological foundations, personality, measurement, learning, stress and mental disorders.

General Education: Social Sciences

WRIT2010 | Technical Writing | Lecture (3 Credits)

Technical writing applications are studied for format, style, voice, and point of view; considered for purpose, audience, and subject. Critical thinking and developed expertise are employed to analyze, interpret, evaluate, summarize and generate various technical documents, individually and within teams.

General Education: Communications